



**STATE OF RHODE
ISLAND
UNIFIED
INFRASTRUCTURE
PROJECT**

**MONTHLY IV&V ASSESSMENT
MARCH 2016**

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1. OVERVIEW

1.1 Purpose

The purpose of this report is to provide the Independent Verification and Validation (IV&V) Monthly Assessment for the Rhode Island Unified Health Infrastructure Project (RI UHIP). CSG Government Solution's (CSG) IV&V services provide an independent perspective of project activities, plans, and processes to identify risks and make actionable recommendations on how those risks can be addressed or planned for and managed.

This Monthly IV&V Assessment is an end of the month assessment and establishes a baseline for ongoing monthly assessments. This assessment provides a snapshot of project health, observations, and actionable recommendations to address risks identified during the month.

The CSG IV&V team analyzed the governance practices, current activities, processes, procedures, project documents, completed deliverables, and other project artifacts, as well as conducted interviews with some of Deloitte's team members and observed project meetings. This document contains information collected from March 1, 2016 through March 31, 2016.

The Monthly IV&V Assessment for the RI UHIP is expected to provide the following benefits:

- A high-level management review of the RI UHIP processes and product risk
- Early identification, planning, and resolution of risks and issues
- Increased likelihood of project success
- Increased overall project quality

1.2 Background

The RI UHIP was launched on January 22, 2013. The goals of the RI UHIP focused on implementing an Affordable Care Act (ACA)-compliant health insurance marketplace and an integrated eligibility system solution via two phases.

- **Phase 1:** Implemented a fully compliant ACA health insurance marketplace by October 1, 2013. Phase 1 officially ended after the implementation of Enhancement Release 6.6 on February 1, 2016.
- **Phase 2:** Implement an integrated eligibility system that includes programs such as TANF, SNAP, and other human services programs in July 2016.

CSG has been engaged to provide IV&V services to the RI UHIP. The CSG approach to IV&V for the RI UHIP is tailored to meet the specific requirements of this project. Currently, the RI UHIP is in Phase 2.

2. PROJECT HEALTH DASHBOARD: MARCH 2016

Below is a summary Dashboard of the RI UHIP as of March 31, 2016. Overall, Release 7 is Moderate Risk is trending High Risk due to a growing number of key observations that can impact Go-Live. Continue to consider and expedite corrective actions with a focus on key areas critical to Go-Live. See Section 5.3 for supporting detailed observations and recommendations.

Table 1 – Project Health Dashboard

Rhode Island Unified Health Infrastructure Project											
Phase 2 – Release 7											
PROJECT STATUS INDICATORS											
SCOPE			COST			SCHEDULE/RESOURCES			QUALITY		
Previous	Current	Trend	Previous	Current	Trend	Previous	Current	Trend	Previous	Current	Trend
Moderate	Moderate	-	Low	Low	NA	High	High	NA	Moderate	Moderate	-

3. KEY OBSERVATIONS AND RECOMMENDATIONS

Key observations and recommendations identify those areas that need immediate attention and focus to improve or maintain the health of the project. The following sections summarize our observations and recommendations for those categories that received a status of high risk and some key observations and recommendations for categories that received a status of medium risk during this assessment period.

The detailed observations in Section 5.3, for which the risk rank is rated as high risk or medium risk, should be carefully reviewed and risk response strategies and plans developed. For those observations rated with a low or none risk rank, the State should continue to monitor these areas to ensure controls and processes remain effective.

The key observations and key recommendations are divided into the following Risk Assessment Areas of Focus from the Project Health Dashboard:

- Scope – Are project activities properly defined and managed throughout UHIP?
- Cost – Are budget/funding requirements defined and managed?
- Schedule/Resources – Is the schedule defined, managed, and properly resourced?
- Quality – Are quality processes (System Development Life Cycles and Project Management Processes) defined and followed resulting in quality deliverables?

3.1 Scope

The scope category measures progress against requirements to ensure existing requirements are delivered and new or changed requirements are addressed. Change Control impacting the project's schedule, resources requirements, and budget are considered.

3.1.1 Progress Since Last Report

Since the last reporting period, the project scope trend has remained constant. **Phase 2 scope is a moderate risk, but trending High Risk** due to a growing number of observations and risks that can impact Go-Live. Consider corrective action or monitor previous corrective action.

3.1.2 Observations and Recommendations

➤ CMS Mandated Deliverables Required for Go-Live

✓ Observation

- CMS requires the State to update and submit documents, per mutual agreement, from the Information Technology Enterprise Life Cycle (IT ELC) document.

✓ Recommendation

- The State should complete all required documents and upload them in CALT for CMS review prior to the Go-Live.

➤ UHIP System Documentation Updates to CMS required for Authority To Connect (ATC)

✓ Observation

- To be granted ATC on 8/1/2016, all the federal compliance documents have to be submitted to the CMS.
- ✓ **Recommendation**
 - The State should work with Deloitte to ensure all required documents are updated and reviewed with CMS. All documents should be deemed acceptable and submitted to CMS prior to 8/1/2016.
- **Vulnerability Testing Report not Delivered**
 - ✓ **Observation**
 - The security testing plan and scope were not shared with the State Security team. As such, the State was not aware where security scans were planned or conducted and the State received no information on the level of defects found during testing. Without this information, there may be security vulnerabilities not identified or reported to the State.
 - ✓ **Recommendation**
 - State should request status and delivery of the 6.6 security report “2/1/16 release.” Additionally, Release 7 vulnerability testing plan should be immediately distributed, discussed and scheduled.
- **Data feed from RIBridges not Complete**
 - ✓ **Observation**
 - Deloitte is required to create a daily batch feed of specified data fields from RIBridges to the Human Services Data Warehouse (HSDW), with the data to be exported determined through analysis and design to be performed by the Deloitte. To date, a daily data feed from RIBridges to the HSDW has not been completed.
 - ✓ **Recommendation**
 - The State should ensure that Deloitte is working with HP to develop a daily batch feed for the HSDW prior to Go-Live. The data are required by the OMR office for clinical eligibility determination.
- **Roadblocks in Test Case Rewrite, Execution, and Distribution**
 - ✓ **Observation**
 - EOHHS test case deficiencies were identified and discussed, but the test cases were not updated. DHS test cases provided to EOHHS for review/approval were not distributed for execution.
 - ✓ **Recommendation**
 - EOHSS should identify a resource to properly review test cases for accuracy and thoroughness and ensure the test cases are properly planned for execution.
 - PCG has been brought onboard to support test cases and Matt Harvey is taking the lead on managing the overall effort. As a result, progress is being realized.

3.2 Cost

The cost category measures progress against approved and planned budget allocations.

3.2.1 Progress Since Last Report

Since the last reporting period, the project cost trend improved. **Phase 2 cost is a low risk**; on track with minor concerns.

3.2.2 Observations and Recommendations

- **No new observations or significant updates for this section.**

3.3 Schedule/Resources

The schedule/resources category measures the quality and validity of the project schedule. It also measures progress against a valid, baselined work plan and verifies the project team is meeting the timeframes documented within that plan.

3.3.1 Progress Since Last Report

Since the last reporting period, the project schedule and resources have remained constant. **Phase 2 schedule and resources are a high risk**; immediate corrective action with significant concerns have been identified.

3.3.2 Observations and Recommendations

- **Release 7 UAT Cycle 3**

- ✓ **Observation**

- The development of the UAT Cycle 3 test cases is behind schedule. The items below impact the schedule and timely completion of UAT.
 1. All the scripts have not been completed.
 2. Incomplete test script activities impact the ability to build a detailed UAT Execution Plan/Schedule.
 3. The total number of needed testers has not been determined.
 4. Some testers are also writing test cases. When testing, they cannot script; this impacts productivity. Also, the testers cannot and should not execute their own test cases.

- ✓ **Recommendation**

- Test case development should continue through UAT with testing resources split between testing and scripting activities. The UAT Execution Plan/Schedule should continue to be work in process. Since all the test cases have not been created, the plan/schedule is high-level but should become more detailed. The total number of testers needed will be derived from the detailed Test Execution Plan that is under construction. Additional EOHHS test case authors are being brought onboard.

- UAT Cycle 3 test case development had been mitigated and was scheduled for completion on 3/18/16. However, 21 scripts could not be executed because of time travel dependencies and Cycle 3 was extended into April.
- **Interfaces for Release 7 are Delayed**
 - ✓ **Observation**
 - The interfaces required between systems for Release 7 are delayed. The delay may impact UAT and PILOT.
 - ✓ **Recommendation**
 - Overall Interface status is significantly behind schedule and observed as a high risk during the week. A plan is required to get on track.
- **Release 7 Code Merge Schedule/Plan Revised**
 - ✓ **Observation**
 - Deloitte is adding two code merges (one on 4/15/16 and one on 6/15/16) to the four initially planned (2/1/16, 4/1/16, 5/1/16, and 6/1/16). The added code merges may extend UAT and limit the time for defect resolution, thus potentially delaying UAT exit and jeopardizing the project Go-Live schedule.
 - ✓ **Recommendation**
 - The State should require Deloitte to provide clarification on the specific functionality to be included in each code merge. This information needs to be shared with UAT to support planning for test cases and resource needs. Deloitte should have a plan to expedite defect resolution to support UAT efforts and allow for timely UAT exit.
- **Interfaces- Department of Health and Corrections**
 - ✓ **Observation**
 - The development of the DOH and DOC interfaces have not been started for the Phase 2/IES system. Deloitte does not consider these interfaces as a part of the original requirements for the Phase 2/IES system. These interfaces are required to be operational in system to support Go-Live and allow customer eligibility information, including birth, death and incarceration data, to be exchanged.
 - ✓ **Recommendation**
 - The State and Deloitte should make an agreement that allows for development of these interfaces to begin within a schedule that enables their completion and testing to support Go-Live. To expedite discussions, the State and Deloitte should consider the original UHIP requirement traceability matrix that includes the interfaces as part of the HIX/IE scope.
- **Semi-Annual Security Report has not been Provided**
 - ✓ **Observation**
 - Deloitte has not prepared a Security Report, which is required to be submitted every 6 months to the State.
 - ✓ **Recommendation**

- The State has requested a Security Audit Report to be provided by the earliest possible. State should also require Deloitte to consistently submit the Semi-Annual Security report per the contracted timelines.

3.4 Quality

The quality category measures compliance with design including defect levels identified during testing, production defect identification, and the ability to quickly resolve quality issues. It also serves to evaluate the adherence to project management processes outlined within the project management plan, system development life cycle processes, and via the quality of all deliverables.

3.4.1 Progress Since Last Report

Since the last reporting period, the project quality for **Phase 2 quality has remained a medium risk, but trending High Risk** due to a growing number of observations and risks that can impact Go-Live. Consider corrective action or monitor previous corrective action.

3.4.2 Observations and Recommendations

➤ UAT Test Cases Inaccurately Passed

✓ Observation

- UAT test cases are being passed without having met the criteria identified within the test script; testers are deviating from the test scripts and passing test cases.

✓ Recommendation

- Testing procedures should be strictly enforced by all stakeholders, and the testers should be encouraged to utilize their training material.
- In order to ensure proper test case execution and defect logging, constant monitoring and interaction of UAT activities is required.

➤ Incomplete Testing Efforts for Interfaces in SIT

✓ Observation

- Deloitte's interface SIT efforts primarily entail ensuring the files are correctly formatted and the data can be read; end-to-end testing is lacking.

✓ Recommendation

- The State should require that Deloitte fully test all interfaces in SIT prior to deploying the functionality into UAT, as described in Deloitte's P2 Application Development Plan.

➤ HealthSource RI Slow System Performance

✓ Observation

- System performance has been periodically slow starting back in December 2015.

✓ Recommendation

- System performance has been inconsistent and the State should continue to monitor performance. Detailed root cause analysis should be conducted if any performance issues occur.

➤ **Conversion – Data Conflicts**

✓ **Observation**

- A significant number of data conflicts has been found in client records during the InRhodes and RIBridges data conversion. Resolution of the conflicts may require manual efforts and is required prior to go-live. The exact plan for resolving the conflicts is still in work and the decision could impact the overall schedule.

✓ **Recommendation**

- A plan should be developed that includes a timely approach to fix these conflicts prior to go-live. If the approach includes manual intervention, acceptable resource plans should be included. Mitigation plans should be considered due to the risk of individuals who may be eligible for benefits being denied due to incorrect data conversion.

➤ **Deliverables are Not Being Maintained**

✓ **Observation**

- Existing planned deliverables are not updated and revised to reflect that system and environment changes associated with the single database design.

✓ **Recommendation**

- Technical deliverables should be updated prior to go-live for CMS review.

➤ **UHIP-HIX/IE Security Audit Not Performed**

✓ **Observation**

- UHIP-HIX/IE Security Audit has not been performed due to a disagreement between whether the SOC II Type 2 Audit will be completed instead of the SAS Level 2 audit included in the contract.

✓ **Recommendation**

- Coordinate with Deloitte to provide the UHIP-HIX/IE Security Audits per the contracted timelines.

➤ **Release 7 UAT Test Scripts**

✓ **Observation**

- The number and quality of UAT test scripts created to date will not thoroughly test the system.

✓ **Recommendation**

- The State should review the functionality within each agency to determine the appropriate number of test scripts and ensure the test scripts are vetted for accuracy and thoroughness before being executed.

4. DETAILED MONTHLY IV&V ASSESSMENT

4.1 Approach

The CSG IV&V team's approach to the Monthly IV&V Assessment is to assess the RI UHIP to understand the environment, project goals and objectives, and the critical project success factors so project risks and actionable recommendations are documented. In areas of the assessment where the project has minimal activity (due to the current phase of the project), we offer proactive advice where appropriate. For items in which we gain early insight, the team has taken an approach to err on the side of caution and to raise any perceived risk in this Monthly IV&V Assessment. This enables those risks to be reviewed and addressed in a timely manner, if needed.

All information received by March 31, 2016 is included in this report. Information received after this date will be included in the next monthly assessment scheduled for April 2016. The Monthly IV&V Assessment documents current observations and recommendations and establishes the baseline for future Monthly IV&V Assessments.

4.1.1 Interviews

The IV&V team schedules interviews with key personnel. Follow up interviews are conducted as needed so that the IV&V team maintains a complete understanding of the project risks.

4.1.2 Project Meetings

IV&V team members attend project meetings and review formal meeting minutes produced from these meetings to ensure that summaries are complete and accurate and all decisions, action items, risks, and issues are appropriately noted. Observing project meetings enables the IV&V team to maintain a full understanding of project processes, current activities, and status and to gain additional insight and understanding of project risks.

4.1.3 Document Review

Formal deliverable reviews are a fundamental validation activity provided by the IV&V team. For each deliverable, the IV&V team conducts a review that is tailored to the subject matter presented. Since the content and purpose of each deliverable varies, the type of review also varies. The IV&V team uses the appropriate industry standards and guidelines in the review of the deliverables. In some cases, the standard may have been specified via contractual documents, while in other cases it may be a best practice for the specific subject matter. In any event, prior to its review, we determine what standards are applicable to the deliverable and whether or not compliance is required. For every deliverable, we verify its correctness, accuracy, completeness, and readability. We also participate in a walkthrough of the deliverable, as appropriate. This walkthrough allows the IV&V team to become familiar with the deliverable and ask specific questions about the deliverable's content.

For subsequent resubmission of DDI vendor deliverables, the IV&V team conducts a review and provides the UHIP stakeholders with a relevant observation of the changes found between the last and most current submission of the deliverable. Any relevant observations are logged in the TeamCSG™ tool and then reported in the next Weekly Status Report.

4.2 Tools

4.2.1 *TeamCSGSMTracker*: Risk Assessment Model

TeamCSGSM Tracker: Risk Assessment Model guides the IV&V team through identifying and evaluating the type and level of risk (low, medium, high) a project may encounter. This allows for a snapshot of level of risk in the project. The risk level helps the RI UHIP and vendor project teams focus their efforts on planning for and responding to key risk areas. The Risk Assessment Model encompasses industry standards for project management and system engineering, such as PMBOK and IEEE standards.

The Risk Assessment Model is used to prioritize and assess the impact of items according to business functions and specific risks. These risk assessment items can be tracked from one review period to the next to determine increasing or decreasing risk levels and project health, not only at an item level but also within a category or subcategory.

The Risk Assessment Model is broken down into three major risk domains: 1) Project Management, 2) IT (information technology) Infrastructure, and 3) SDLC - System Development Life Cycle.

4.3 Detailed Observations and Recommendations

Below is a detailed listing of the observations and recommendations completed by the CSG IV&V team. The table is developed from the information captured in the *TeamCSGSM Risk Assessment Tracking* tool and *TeamCSGSM Risk Assessment Model* categories for reporting, tracking, and follow-up. The CSG IV&V team migrated from a legacy observation tracking tool to the *TeamCSGSM Risk Assessment Tracking* tool throughout March 2016. Numbers referenced within the title of an observation, under the Title column, denote the original ID assigned by the legacy observation tracking tool.

Table 2 – New Observations and Recommendations

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
163	Gloria Darby	Testing	Quality	UAT Test Cases Inaccurately Passed	UAT test cases are being passed without having met the criteria identified within the test script. Testers are deviating from the script and passing test cases. Testing outside the established test script is considered ad hoc testing. Deviating from the test script does not guarantee that the functionality is being accurately and thoroughly tested. It also provides a false pass rate.	Testing procedures should be strictly enforced by all stakeholders, and the testers should be encouraged to utilize their training material. Questions and concerns pertaining to the test cases should be discussed with the test case scripters. In order to ensure proper test case execution and defect logging, constant monitoring and interaction of UAT activities is required.	High
166	Gloria Darby	Testing	Schedule/Resource	Limited EOHHS Resources for Supporting UAT	EOHHS currently provide testers once or twice a week for anywhere from 2 - 6 hours. EOHHS have a limited number of staff for supporting any testing efforts. Testing resources for EOHHS will not be available on a daily basis to support UAT execution. This could greatly impact the successful execution of UAT cases.	It is recommended that EOHHS reach out to DHS to see if they can provide staff for execution. If DHS is not available to provide support, EOHHS should consider (1) making staff available, (2) consider contractors for testing.	High
167	Bobby Malhotra	Technical	Quality	Data Integrity	The transactional schema IE_APP_ONLINE alone includes over 2,600 tables/views including the audit tables), rough counts of parent/child relationships via foreign keys accounts for less than 1,000 tables. The audit tables (with names ending in _A) are not expected to have foreign keys by design, but	The recommendation is to perform a thorough review of the tables that do not have any RI constraints to see why so many such tables exist. Further, an analysis of all tables should be performed to ensure that no other foreign keys are missing. This can likely be expedited somewhat based on column naming conventions to identify columns holding common keys. In the event	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					that only explains about 500 of them leaving another 500 for further review. Based on table counts, there seem to be hundreds of transaction tables that do not have any foreign key relationships at all. Unless all of these tables turn out to be truly “disconnected” for valid reasons, there may be significant omissions in the referential integrity (RI). Missing RI can allow invalid values to be populated and subsequently these rows may be missed in queries that perform a join on what may be expected to be firm relationship with another table. Without RI to preserve a relationship, a value that is used by a table which is missing the foreign key definition can have its row deleted in the parent table with no warning or error. Although the application may be programmed in such a way as to enforce the relationships via code, this approach does not support detection when data is manually manipulated as part of a data fix.	that columns are not utilizing RI for intentional reasons such as runtime performance issues or the requirement to hold data that has not yet passed validation, a systematic approach to documenting these as column comments in the database and/or notes in the data dictionary is recommended. These decisions and comments should be shared beyond the development team to include users that may be performing support activities including state staff.	
177	Bobby Malhotra	Technical	Scope	CMS Mandated Deliverables Required for Go-Live	CMS requires the State to update and submit documents, per mutual agreement, from the	The State should provide the documents prior to the scheduled Go-Live date. The list of documents include, but are not limited to, the	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					Information Technology Enterprise Life Cycle (IT ELC) document.	concept of operation (ConOps), architecture diagrams, technical architecture diagrams, system security plans, IV&V reports, etc. The State should upload all relevant documents in CALT for CMS review.	
178	Bobby Malhotra	Technical	Quality	HIX/IE Data Replication to the Disaster Recovery (DR) Site	Data replication plan, schedule, and quantity of data from HIX/IE to Sacramento site not yet finalized. NTT Data, sub-contractor for Deloitte, replaced their data replication software with Zerto Virtual Replication software (Zerto). The HSRI data replication between San Jose and Sacramento took longer than expected. It took one day to replicate 100 GB of data. Data replication, if not appropriately planned, could delay the completion of data replication before Go-live on July 12, 2016.	It is recommended that the State; <ol style="list-style-type: none"> 1. Require Deloitte to provide a plan with details for the go-live data replication process, schedule, and quantity of data. 2. Verify the data replicated is consistent with the source data. 3. Evaluate the Zerto tool to assure that it is robust and capable of efficiently replicating the HIX/IE data. 	High
179	Bobby Malhotra	Technical	Quality	Security - User Role and Permission Matrix	The single database approach consolidated the HIX/IE permission matrix. This allows for the management of all user roles and the permission matrix within IES/RIbridges. Significant testing is required to assure that each user has access to their authorized screens. Failure to correctly authenticate and authorize each user could result in a security incident. In addition, it may lead to permission	It is recommended that the State; <ol style="list-style-type: none"> 1. Require Deloitte to provide the SIT scripts, with the results, to validate appropriate end-to-end user role-based testing. 2. Require the execution of the appropriately documented test plan and UAT scripts during UAT and the pilots. 3. Require each Agency to assure the successful testing and verification of all the roles per their business rules before Go-Live. 	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
<u>169</u>	William, Riippi	Schedule	Schedule/Resource	Release 7 Code Merge Schedule/Plan Revised	issues with the application. Deloitte is adding two code merges (one on 4/15 and one on 6/15) to the four initially planned (2/1, 4/1, 5/1, and 6/1). It is our understanding that one of the reasons for the code merges is to allow for an incremental delivery of functionality to support UAT. While this may allow for ongoing UAT on some of the new functionality, it also extends UAT and limits the time for defect resolution, thus potentially delaying UAT exit and jeopardizing the project Go-Live schedule.	The State should require Deloitte to provide clarification on the specific functionality to be included in each code merge. This information needs to be shared with UAT to support planning for test cases and resource needs. Additionally, the State should require Deloitte to ensure a plan is in place to expedite defect resolution to support UAT efforts and allow for timely UAT exit prior to the schedule Go-Live.	High
<u>171</u>	Bobby Malhotra	Technical	Schedule/Resource	Interfaces- Department of Health and Corrections	The development of the DOH and DOC interfaces have not been started for the Phase 2/IES system. Deloitte does not consider these interfaces as a part of the original requirements for the Phase 2/IES system. These interfaces are required to be operational in system to support Go-Live and the current process is delaying development and subsequent SIT and UAT. The interfaces allow customer eligibility information, including birth, death and incarceration data, to be exchanged.	The State and Deloitte should make an agreement that allows for development of these interfaces to begin within a schedule that enables their completion and testing to support Go-Live. To expedite discussions, the State and Deloitte should consider the original UHIP requirement traceability matrix that includes the interfaces as part of the HIX/IE scope.	High
<u>168</u>	Bobby Malhotra	Technical	Quality	Conversion – Data Conflicts	During the conversion process, a significant number	State should require Deloitte to provide status reports, including	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					<p>of data conflicts (e.g. different employment, income, address, etc.) have been found in the records of individuals who are in both InRhodes and RIBridges. The number of conflicts reported to date is already large and conversion is not complete. The exact plan for resolving the conflicts is still in work and manual effort may be considered to resolve the conflicts.</p> <p>These conflicts have to be resolved prior to the execution of any major batch and/or prior to go-live. The impact of the data selected must be carefully considered with regard to subsequent eligibility determination in the new system. If data is selected that is not current and incorrect, individuals who are currently eligible for benefits may be denied.</p>	<p>results of specific conversion conflicts identified (e.g. the number and types of conflicts). A plan should be developed that includes a timely approach to fix these conflicts prior to go-live. If the approach includes manual intervention, acceptable resource plans should be included. Mitigation plans should be considered due to the risk of individuals who may be eligible for benefits being denied due to incorrect data conversion.</p>	
162	Gloria Darby	Testing	Schedule/Resource	Insufficient UAT Support for Testers	<p>Additional support is needed to maximize the efficiency and effectiveness of the UAT testers. Test case execution and initial defect analysis are hammered without adequate support from both the test case scripters and development team. The testers are instructed to following the test scripts. When questions or concerns</p>	<p>Combined with CSG's support and work within both JAMA and JIRA, additional Deloitte and NG support is need to ensure accurate test case execution and defect resolutions.</p>	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
164	Bobby Malhotra	Communications	Quality	Minimal Visibility to Phase 2 Development and Testing	Deloitte has kept very minimal communication with State on development and system integration testing efforts. Without notifying State or discussing the feasibility of any existing implemented functionality designs are getting modified. Phase 2 with Contact Center Integration enhancements couples all the agencies to single source of truth “Single database”, any change to the existing functionality due to design or system feasibility, issue if not well communicated, depending on the significance of the change may cause or delay EOHHS, Exchange and/or DHS in user acceptance testing, which may further impact the Go-Live schedule.	State should require Deloitte to set up time involving all agencies to discuss the development and SIT efforts. Deloitte should immediately provide detailed demonstration to the State to obtain a better understanding of the any significant design change other than Claimed SSN, citizens to retrieve their eligibility/enrollment data from the citizen portal instead of RIBridges. State should require Deloitte to submit results with detailed exit criteria of SIT and smoke testing with the trading partners prior deploying into UAT	Medium
165	Bobby Malhotra	Operations	Quality	UHIP Security Certificates Not Being Tracked	A process has not been established to track the validity (e.g. expiration dates) of the security certificates and other types of certificates used/installed within UHIP system. Without a process and tool to manage these certificates, they may unexpectedly expire and result in interruption of the services if not renewed on time.	The State should require Deloitte to develop a process to manage and track the validity of all certificates used in the UHIP system (Customer portal, training environment, testing environment, phase 2, DR site). Certification reporting process should be prepared and consistently reported to the State.	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
<u>170</u>	Bobby Malhotra	Technical	Quality	Performance Testing for Release 7	Deloitte has initiated Release 7 performance testing without the submission and approval of a performance-testing plan. A plan must be reviewed and approved by the State is required before the results can be validated. Performance tests scheduled (April, May and June) to reevaluate the production capacity should consistently monitored to make sure the results mimics the production behavior.	The batches should be tested/examined utilizing a database identical in size to Production in order to gauge performance and evaluate its efficiency and stability. Consider simulating a production level of activity and load to observe the system performance under heavy load, in a scaled-down environment. Conduct sessions with the State technical team to ensure environment capabilities.	Medium
<u>172</u>	Bobby Malhotra	Technical	Scope	Annual Penetration Test Not Conducted	Deloitte is contracted to perform a network penetration test every year with the results to be published to the State within 14 days of completion. The penetration test results are important and represent the potential vulnerabilities in the system and the associated security risks. Without the test results and identified risks, an evaluation of the system vulnerabilities cannot be performed.	The State should require Deloitte to immediately conduct the network penetration test and submit the results to the State for review within 14 days of completion.	Medium

Table 3 – Observations and Recommendations Monitored

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
<u>173</u>	Gloria	Testing	Quality	MMIS Testing is	MMIS Testing is insufficient	It is recommended that EOHS write	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
	Darby			insufficient and has not been executed end-to-end	and has not been executed end-to-end. Test cases were written by DHS and do not provide the level of detail needed to generate the correct transactions. Testing done thus far in UAT only tested the 1A and 1B transactions. Testing has not been executed to efficiently test the cases from end-to-end. The same test case was used multiple times preventing a true and accurate transaction from going downstream to HPE. The majority of transactions HPE has received thus far have not been part of a specific end-to-end scenarios	test cases that can be fully executed with HP to ensure true end-to-end results by testing all transactions. This may require test cases to be written in more detailed.	
111	Bobby Malhotra	Requirements	Quality	Existing Plan Deliverables not Updated and Revised - #388	The system architecture, DR plan, capacity plan, database development, configuration plan, and others have not been updated with the new Phase 2 single database design. These deliverables will be required during the maintenance period and to support future system audits on the UHIP system. Additionally, the total number of environments, servers, and licensed software installations may	The State should acknowledge and encourage Deloitte to update the technology and database related existing deliverables. The State should identify all essential technical documents for Deloitte to update to reflect the single database design. The State should request a Software Licensing Analysis and True-Up from Deloitte to provide an audit and balancing of all ordered versus used software to ensure compliance with licensing terms.	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					be in excess of original planned and licensed quantities which could incur additional licensing costs.		
107	Bobby Malhotra	Technical	Quality	Production Data Access for Phase 2 Interface Testing - #384	To test interfaces and batches, Deloitte requested testing with converted data in UAT CV for SSA interfaces, SSP Payrolls, mid-certification notices, etc. The approval was granted for two Deloitte individuals to access Production data. The State CISO firmly stated that Deloitte could not access Production data without masking when testing.	Production data access as advised by CISO and State tech lead, should be immediately eliminated without encryption. Deloitte and the State should work with external sources (interfaces) to find an alternate otherwise this will hamper the UAT E2E testing for Cycle 3. Also, no batch should run to process files from Prod SFTP server for SIT or UAT	High
102	Bobby Malhotra	Technical	Quality	Integrated Eligibility Services Code Quality based on Bi-Monthly Code Review 6 - #377	The random sample was selected from recently modified modules and the fifth code review was used for the manual code review and automated code review. The sample revealed several issues that fall into two basic areas of review 1) Comments and 2) Organization and Error Handling. However, all issues still remained from the fifth code review with very few deficiencies remediated.	Based on the issues found and recommendations, the following steps are recommended for the UHIP team to consider: Provide the code quality checklist to the development team and closely monitor if they make sure to RUN Sonar and complete peer code reviews before checking in class to the repository. Continue making efforts to improve the code quality and code as per best industry standards. Every developer must run the SONAR report during development and during defect repair. Code should be SONAR compliant for critical and blockers. Reduce the SONAR major issues within each release.	High
110	Bobby	Technical	Schedule/Resource	Interfaces Schedule	Several interfaces require	State should insist Deloitte to provide	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
	Malhotra			for Release 7 - #387	reach out to the source with considerable work around. Many interfaces are under SIT or development. Majority of the interfaces will not be ready by 2/1 for UAT.	definitive timeline and the plan of interfaces testing for Cycle 3 user acceptance testing. UHIP EDS schema gets weekly refresh from DOH and DOC, Deloitte and State should discuss if that can be used for Human services programs. DUA should be signed between the agencies if required	
118	Bobby Malhotra	Technical	Quality	Network Bandwidth Testing Readiness - #396	Network Bandwidth Testing Readiness UHIP network traffic analysis and readiness for RIBridges go-live for 07/2016 have been initiated by the State. There are several areas identified which requires high attention and needs inputs from various agencies.	Before using EDM/Scanners in production, Deloitte should determine the size, type, and quantity of documents which will be uploaded or exchanged/transferred via the network by each location. The scanner usage and user load should be divided by the location (e.g. Providence, Cranston, New port etc.). Deloitte/NTT Data should provide firewall specs to the State for further enhancement on the State's firewall size.	High
106	Bobby Malhotra	Technical	Quality	Phase 1 Slow System Performance - #383	System performance consistently observed to be slower than usual starting the week of 12/14/15. Application submissions and verifying tasks are heavily impacted, while page navigation and other activities have experienced degraded performance at peak times. All users, including individuals and workers across DHS offices and the Contact Center, are impacted. The impact is heaviest during peak hours	There is an immediate need for workarounds to track system performance. The RIBridges single database design will have shared/common functionalities and the expected load will be heavy on the IES code. It is recommended, that Phase 2 production environment be simulated within a performance environment. All issues found and fixed during the previous and current open enrollments should be documented. An actionable plan should be built with metrics captured on a regular basis, benchmarks, and shared wide area network bandwidth	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					(M-F, 8 am - 5pm).	utilization tracked all based on the new RIBridges. Any known performance issues should be communicated to the State.	
155	Bobby Malhotra	Technical	Scope	Data feed from RIBridges to Data Warehouse	According to original requirements, Deloitte is required to create a daily batch feed of specified data fields from RIBridges to the Human Services Data Warehouse (HSDW), with the data to be exported determined through analysis and design to be performed by the Deloitte. To date, Deloitte has not developed a daily data feed from RIBridges to the HSDW. The Office of Medical Review (OMR) currently uses the Customer Service Management (CSM) tool to determine clinical eligibility. The CSM interfaces with data warehouse real-time to gather eligibility data of customers applying for benefits. Without a daily data feed from RIBridges, the Office of Medical Review (OMR) will be significantly impacted after go live. Clinical eligibility determinations will be based on outdated data.	The State should ensure that Deloitte is working with HP to develop a daily batch feed for the HSDW prior to go live. Weekly meetings with a detailed plan should be scheduled between the State, Deloitte and HP. If the batch cannot be developed prior to go live, an alternate plan should be discussed to ensure that OMR will have current data for clinical eligibility determinations.	High
103	Bobby Malhotra	Technical	Quality	Health Insurance Exchange Code	The random sample that CSG selected from recently	Based on the issues found and recommendations, the following	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
				Quality based on Bi-Monthly Code Review 7 - #378	modified modules and the fourth code review was used for the manual code review. The sample revealed several issues that falls into three basic areas of review 1) Comments 2) Organization 3) Error Handling. Although there were several issues identified during the code review, improvement was observed during this review.	steps are recommended for the UHIP team to consider: a) Reduce the SONAR major issues within each release. b) Peer code reviews are a standard approach and are mandatory. c) Discuss the approach for new single database design; conduct meetings with CSG and the State to provide more insight on the integrated development to inform all the areas of the code which are planned to be refactored. d) Provide the code quality checklist to the development team and closely monitor if they make sure to RUN Sonar and complete peer code reviews before checking in class to the repository. e) Continue making efforts to improve the code quality and code as per best industry standards.	
128	Bobby Malhotra	Technical	Quality	HIX Application Framework Still Requires Data Synchronization (Duplication) - #411	<p>What: The HIX application framework still requires that the data which is directly accessed by the application exists in the HIX database schema (a copy) even though with the new single database design the master "source of truth" is considered to be the IES database schema.</p> <p>Implications: Storing copies of the data and synchronizing changes back and forth incurs some risk of sync failures. In one specific scenario where</p>	<p>The State Tech Team and Deloitte should collaboratively review the design and implementation to ensure that synchronization failures will be automatically retried and processes are in place to escalate any ongoing failures. Ensure that all failure scenarios are thoroughly tested. Ensure sufficient negative testing is performed (such as having a DBA lock a table to block updates) and validated for all anticipated and potential synchronization failure scenarios.</p> <p>Ensure fatal conditions at runtime are properly logged and escalated to mutually agreed contacts with the</p>	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					data has been saved in the citizen portal without submitting, changes made in the worker portal can synchronize back and overlay the citizen-entered data, causing data loss.	support team and the State. In addition to handling synchronization exceptions as they happen, perform periodic validations to ensure the data stays properly synchronized.	
96	Bobby Malhotra	Technical	Schedule/Resource	2015 Disaster Recovery Testing - #366	The 2015 DR plan has not been completed. Viewing disaster recovery at an enterprise level may reveal missing or critical interdependencies. In addition, a complete business continuity plan has not been finalized.	Recommend creating a 2015 Disaster Recovery (DR) Plan. Deloitte should identify the point of contact from NTT and Deloitte's Infrastructure team for all DR related activities and finalized a date for testing. It is also recommended that Deloitte create and maintain a Disaster Recovery Tracker to track DR plans across vendors and agencies.	High
101	Bobby Malhotra	Technical	Schedule/Resource	Disaster Recovery (DR) site moving to Sacramento - #375	Deloitte informed the State that the DR site managed by NTT Data will be relocated to Sacramento from San Jose. In addition, the contractual DR planned for October may not happen because of the pending site change. The disaster recovery environment is a mirror image of the Warwick data center technology, where both data and the server images are replicated asynchronous to the DR facility. The State is required to communicate any DR site change to CMS for prior approval.	Deloitte should provide more explanation to the State about the new DR site change. The new site change, including testing efforts should be documented or update the DR Plan 12 and then circulated through the State PMO process for formal approval. CMS should also be made aware of the pending change for prior approval. Deloitte should arrange with the State designee to inspect the new Sacramento site.	High
158	Bobby	Technical	Scope	Consolidated	During the development of	The State should ask Deloitte to	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
	Malhotra			Database Design – Security Assessment	<p>the Database Consolidation Readiness Assessment Report, four of the security areas evaluated in the database implementation had the following issues identified. This detailed list was noted in the original report issued on 01/29/16.</p> <p>#129/412 (High/High) – Although the Oracle databases are using transparent data encryption for data at rest, other application layers including application servers, ETL tools, and secure FTP landing zones need to be reviewed for any storage of sensitive data.</p> <p>#132/415 (Medium/Medium) – The HIX/IES single sign-on session management design is not finalized and tested.</p> <p>#141/425 (Low/Low) – Access control policies and procedures for direct database access are not formalized in writing. Based on current information, the overall Probability and Impact ratings are both High.</p> <p>Implications: Sensitive data stored on disk (at rest) in</p>	<p>identify all infrastructure platforms and locations where sensitive data is ever at rest on disk and what options are in place or available to ensure this data is encrypted. The State should request Deloitte’s finalized session management design including how the risk of timeout and potential data loss will be mitigated. The State should evaluate the roles and responsibilities where direct database access is required and formalize processes and procedures to authorize and request additions, changes, and deletions of database access for staff. The State should consider the long-term support model and projected separation of roles and responsibilities that may be desired or needed down the road, if any.</p> <p>Technological alternatives exist to encrypt data at rest via disk partition encryption, encrypted file systems, and third-party secure FTP packages that transparently encrypt individual files before storing them on disk. The State security team should collaborate with Deloitte to ensure all data at rest is properly protected. The State should incorporate database access controls with the established controls for application-specific security already in place.</p>	

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					<p>unencrypted format is at risk for access from remote access over the network, at the operating system level, or physical access to the drives themselves. Session timeout within one application (e.g., IES) while user actions are focused in the other (e.g., HIX) could potentially result in data loss.</p> <p>Lack of formalized access controls may result in improper authorization or incomplete audit trails for access to the database.</p>		
176	Bobby Malhotra	Technical	Scope	UHIP System Change Updates to CMS - #367	<p>For Authority to Connect, all the federal compliance documents have to be submitted to the CMS prior to GO-Live, July 2016. CMS has required the State to provide the list of all the major areas, which will be changed or modified in the system with the new centralized database approach (that will share the functionalities between citizen and the worker portal). As per CMS guidance, any changes that require data conversions/migrations i.e. staging environment have to be MARS-e compliant,</p>	<p>The State should ask Deloitte to update the architecture document that should contain all the areas to be refactored, modified, and changed in the new database approach; the updates should include all the updated information at least on all the significant areas listed by CMS. The State Security Team with Deloitte should schedule a meeting to discuss the changes with CMS. The State security team with Deloitte security team should schedule closely work with CMS to discuss the changes. Security documents for ATC should also be timely discussed with the State and CMS</p>	High

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					the same document and third-party test assessment will be required of that environment for CMS approval.		
104	Bobby Malhotra	Testing	Quality	Incomplete Testing Efforts for Interfaces in SIT - #379	<p>Deloitte’s Interface SIT efforts primarily entails ensuring the files are correctly formatted and the data can be read. There does not appear to be a testing effort that includes viewing the data collection screens to see if the data is correctly displayed and the appropriate case action is taken per the data received.</p> <p>As a result, Interface testing in UAT has essentially replaced SIT as the initial test to see how the data is received and displayed in Bridges. This places a significant burden on the State to fully test all interfaces, and increases the amount of time and effort needed to test Interfaces in UAT.</p>	<p>The State should require that Deloitte fully test all interfaces in SIT prior to deploying the functionality into UAT, as described in Deloitte's P2 Application Development Plan: The objective of Perform System Integration Testing activity is to test the customized RI UHIP solution and confirm that various sub-systems and interfaces integrate with the solution and function as required. This testing will be performed in the System Test environment.</p> <p>The SIT testing effort should include not only receiving the files from partners but also reading and displaying data appropriately in Bridges.</p>	High
109	Mike Tully	Testing	Quality	Scripting Efforts for Release 7 - #386	The quality of some the UAT test scripts created to date will not thoroughly test the system. For example, Long Term Care does not account for time travel - (application pending resource or	The State should review the functionality within each agency and ensure the scenarios and level of detail will sufficiently test the business functionality, all test scenarios should be vetted for accuracy and thoroughness before being executed.	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					income information, medical documentation needed for LOC review, the actual LOC review, etc.), changes made to an existing, ongoing case - both stand alone and with SNAP, Plan of Care (which could be entered after the initial LTSS/HCBS authorization - once agency is found) this is needed to generate the Cost of Care in Wrap up, CSRA and how it is integrated into the LTSS/HCBS application, Transfer Penalties and impacts of the various types of assets and how joint ownership with non-hh members impact eligibility, etc. MMIS transactions for all LTSS/HCBS (MMIS transactions for 1E, 1F, 1G, 1U would also be generated depending on the LOC and living arrangement.)		
174	Gloria Darby	Testing	Quality	Cycle 4 FDDs Impacted by Code Merge	Deloitte has not been able to identify the consolidated list of what FDDs will require updates as a part of the code merge process. Phase 1 functionality being merged into Phase 2 has not been documented or provided to the UAT support team to facilitate	The State should require Deloitte to update all FDDs based on changes necessitated by the code merge. Phase 1 functionality being merged into Phase 2 should be documented in the appropriate FDDs, the State along with the vendors contracted to write test cases should be provided with a list of what deliverables will be updated.	High

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					script writing. Not having accurate and current FDDs poses the risk that some cases will not reflect exactly what the tester will see during testing.		
161	Bobby Malhotra	Technical	Schedule/Resource	Consolidated Database Design – System Capacity	<p>During the development of the Database Consolidation Readiness Assessment Report, four areas related to system capacity had the following issues identified. The detailed items as noted in the original report issued on 01/29/16 are listed below:</p> <p>#130/413 (High/High) – The production topology has not been finalized. Based on the draft documentation, significantly more application, enterprise service bus (ESB), and database servers will be added.</p> <p>#143/427 (High/High) – The initial design showed six application servers where 12 will be under consideration today.</p> <p>#144/428 (High/High) – The initial design showed three ESB servers where eight are under consideration today. The draft design is considering four servers dedicated for HIX and four separate</p>	<p>The State should review the production topology design once available to identify any concerns in the following areas:</p> <ul style="list-style-type: none"> - Single points of failure - Performance bottlenecks - Hardware and software initial purchasing/licensing costs - Annual budgetary impact of maintenance fees - Performance testing timeline - Disaster recovery site configuration <p>The State should request itemized metrics and/or dashboard health reports on an ongoing basis for systematic monitoring of key performance and stability metrics such as the number of database threads, concurrent connections, open cursors, and killed sessions to trend over time for maintenance and planning purposes. These metrics will also provide support for post-mortem analysis during triage. Consider adding automated support staff alerts for any indicators above thresholds to be identified based on observed stable values.</p>	High

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					<p>servers dedicated to IES. #145/429 (High/High) – An additional Oracle RAC node is being considered to go to three nodes instead of the two nodes in the current production cluster. The Bridging Document does mention Oracle will run on a three-node cluster with 12 cores each (36 cores total). As per comments made by the DBA, each individual Oracle node today is configured with eight cores (i.e. 16 cores total for the current production RAC). Based on current information, the overall Probability and Impact ratings are both High.</p> <p>Implications: A detailed review of the entire infrastructure could not be performed within the scope of the consolidated database assessment, but the aspects were reviewed based on materials available.</p> <p>Although the structure of the architectural layers is fairly defined, ambiguity regarding the quantity of application, service bus, and especially database servers is a concern with</p>		

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					five months remaining in the go-live schedule. Comprehensive performance testing should be based on the finalized topology design.		
119	Bobby Malhotra	Technical	Quality	HIX/IE Downtime Dependency - #397	The single database model will have a common physical database for both the Phase 1 Citizen Portal and Phase 2 Worker Portal systems. With the centralization of common systems, features will be maintained in the Phase 2 Worker Portal data source. During "HIX/IES" system downtime, both applications will go down.	Determine if the customer interface will be available during IES downtime, how and where data entered by the customer will be stored, and that data will not be lost. Identify if there will there be a disaster solution when the IES is down. The State should require Deloitte to document different scenarios when the HIX portal will be affected, due to IES downtime. This may also impact batch execution as well as supporting the HIX portal.	Medium
98	Gloria Darby	Quality Assurance	Quality	Section 508 Compliance (Accessibility) Testing - #368	Section 508 requires that all website content be accessible to people with disabilities It was inadvertently discovered that a list of codes were being excluded from Deloitte's accessibility testing, and the list was not properly documented within any deliverables. This prompted Deloitte to update the Phase 1 Detailed Test Plan (outside of the Change Management process) with the list of exclusions. Since accessibility is not tested in UAT, the State and CSG require Deloitte to	CSG recommends the State identify testers who are visually or hearing impaired to test the accessibility functionality.	Medium

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					provide a letter of attestation that accessibility testing has been completed; however, this does not equate to the true user experience. The State could face serious fines if it is later discovered that the application is not truly 508 compliant and end-users with disabilities are not able to fully utilize the system.		
121	Gloria Darby	Testing	Schedule/Resource	Phase 1 Testing Resources for Release 7 - #399	<p>Due to staffing changes and vendor changes at the Contact Center, most of the experienced testers from HSRI will not be available to support the HSRI portion of UAT. This experience is crucial in providing successful testing and has allowed the Phase 1 UAT team to have the ability to "hit the ground running."</p> <p>Having to bring on new testers will require onboarding and the ability to "hit the ground running" will be null and void</p>	It is suggested that the State work with the new vendor to be able to utilize those testers that may have remained with the Contact Center for UAT	Medium
100	Bobby Malhotra	Requirements	Quality	Phase 2 - Requirement Traceability Matrix - #371	The current RTM partially supports the new centralized database approach for the UHIP architecture framework. The citizen and the worker portal applications will be	As changes are implemented, Deloitte and the State should perform the required updates to the RTM. The RTM will help ensure that the project requirements are met as well as track all changes made to the system.	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					integrated with shared functionalities. This will be a significant change to existing architecture, including security and shared application frameworks. Without an updated RTM it will be difficult for the State to interpret and keep track of the requirements. The RTM helps to create a downstream and upstream flow of connecting software requirements to product requirements.		
154	Bobby Malhotra	Technical	Quality	Phase 2 Data Model Design Modified without the State Approval	The proposed data model design “Citizen Portal to read the common data from Worker Portal” changed without State approval. Eligibility data will be loaded back to staging database. Moreover, citizens will retrieve their eligibility/enrollment data from the citizen portal instead of RIBridges. The approach was to reduce the volume of data exchange between both the systems, remove the data redundancy, to have the person and account level information devoid of the common services (eligibility, task, notices) data.	Deloitte should provide detailed demonstration to the State to obtain a better understanding of the significant design change. Any change to the design after the deliverable approval should be discussed with State stakeholders prior to implementing or prior to Go-Live on July 2016.	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
112	Bobby Malhotra	Technical	Quality	Performance Testing Results for Release 6.6 - #389	Deloitte has initiated Release 6.6 performance testing. It is assumed that the results will be validated against expected SLA's with newly added/modified functionalities and with common expected usage scenarios. Significant key areas like testing scope, volume, plan, and the environment's capacity have not been discussed with the State and IV&V.	Conduct sessions with the State technical team, including IV&V to ensure environment capabilities. Consider simulating a production level of activity and load to observe system performance under heavy load, in a scaled-down environment.	Medium
95	Bobby Malhotra	Technical	Scope	MFA for Phase 2 Remote Access - #357	The IRS asked the State to implement MFA for IES worker portal. UHIP/IES Worker Portal will only be accessible from within the State's network. The IRS guidelines state that the individual accessing system containing FTI from a remote location requires an encrypted modem and/or Virtual Private Network. Additionally, two-factor authentication - cryptographic identification device, token, is required whenever FTI is being accessed from an alternate work location. The IRS has also stated that FTI can only be viewed using State provided laptop or workstation.	Business approval from all the agencies is immediately required for the remote access. The State must determine how this implementation needs will be funded. State and Deloitte must work together to find out if something can be leveraged from the Phase 1 MFA implementation. Gaps and the requirement must be documented instantaneously so that the scope of work can be included in APD.	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
93	Bobby Malhotra	Technical	Schedule/Resource	Semi-Annual Security Report - #308	There are several requirements (approx. 8 to 10) traced out from the RTM which are being set as NOT MET, for example-Deloitte has not prepared a Security Report, which is required to be submitted every 6 months to the State. As per the requirement, the report must define all security-related activities, upcoming security initiatives, and long-range security plans. The State has not been provided with any such document from the DDI vendor for upcoming security plans, activities to protect the system and application appropriately.	The State should ask Deloitte to provide a plan of action for completing the Security Report. Moving forward Deloitte should submit a Security Report every six months.	Medium
123	Bobby Malhotra	Technical	Scope	Save and Exit Functionality in HIX after Go-Live - #402	The HIX will not accommodate existing users to resubmit an application during the change reporting process. Currently, a user can change their circumstances and exit from the account after saving the data using the 'Save/Exit' functionality. After go-live in 07/2016, batches will be running on the data, maintained within RIBridges tables and not on	It is recommended the State require Deloitte to provide details about the synchronization mechanism on these conditions. If there is not a synchronization plan for the identified scenarios, then an alternate plan or discussions about handling batches should be initiated.	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					the data stored within the HIX account. Therefore, information saved without resubmitting the application using the 'SAVE/EXIT" functionality will never sync data to RI Bridges. This will impact eligibility status, based on the latest data provided by the customer without submitting the application. This also applies to address changes made by a user.		
99	Bobby Malhotra	Technical	Scope	HIX Application Vulnerability Testing - #369	Deloitte is currently conducting security testing within the HIX application. However, the security testing plan and the scope have not been shared with the State Security team. Deloitte has not made the State aware of what areas of the application where security scans are planned or have been conducted. Nor does the State have insight into any information on when and what level of defects was found during testing. Without this information, there may be security vulnerabilities yet to be identified, discussed, and resolved.	It is recommended that Deloitte informs the State Security team about all activities related to Security testing. The State should be notified about the severity of all defects found and provided with a detailed plan, recommendations, and steps taken to fix any issues identified.	Medium
120	Bobby Malhotra	Technical	Quality	Automation Regression Testing for Iteration 7 -	For phase 1 and 2, Deloitte agreed upon creating the automated quality test	Deloitte should provide the update and plan on the automation regression testing. The regression	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
				#398	suites into their regression test process. First Code Merge for Phase 2 “cycle 3” is scheduled for 2/1, there have been no discussion/plan to date on Automation regression testing. Automation suite was not built for 6.6 release which explicitly was considered as an assumption under ca 35.	suite should cover E2E HIX/IE functionalities. State should insist Deloitte to immediately provide the timeline and the status on this.	
116	Bobby Malhotra	Technical	Quality	UHIP Infrastructure - Open Source Products - #394	UHIP infrastructure uses open source products to support major pieces of architecture in the production environment. Lack of commercial support available for majority of the open source products, senior technical expertise are often required to maintain/debug such products	The open source products should be researched and analyzed to determine the level of risk exposure, if any, that is being imposed by using these products. An example is Mule ESB, Apache ActiveMQ.	Medium
117	Bobby Malhotra	Technical	Quality	UHIP-HIX/IE Security Audit - #395	UHIP-HIX/IE Security Audit Grant Thornton have been appointed to conduct the security audit on UHIP-HIX/IE. The State and Deloitte agreed upon having a SOC 2 Type II audit completed. Grant Thornton’s team have expressed some concerns conducting a SOC 2 audit and requested an AT101 audit instead. According to the Bridging document, the audit should be equivalent	The State should require Deloitte to provide detailed information on AT101. Additionally, the language in the bridging document should be closely reviewed before making any determinations. The state should immediately require the close review of the SAS level 2 to determine the scope of SOC II Type 2.	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					to SAS Level 2. There is uncertainty and a lack of information available to the State with details to help them distinguish between both audits.		
125	Mike Tully	Testing	Scope	Backlog of Defects for State Review - #404	The backlog of defects that need to be reviewed between Deloitte and the State for potential change requests has not been completed. The weekly review sessions have been de-prioritized by Deloitte and often cover internal tasks and items that had been reviewed in prior sessions.	Deloitte should review the list prior to meeting with the State to remove internal items and defects that have been reviewed previously or are already included in updated design sessions. Deloitte and State resources should agree on a dedicated schedule for reviewing the backlog until it is completed.	Medium
113	Gloria Darby	Quality Assurance	Quality	Triage Issue Dashboard - #391	Triage tickets are being closed/cancelled without a defined resolution. Triage tickets and the corresponding defect and incident tickets are not in sync.	The States should require Deloitte defined and document the process in how they will handle triage issues and the corresponding defect and AM/PM ticket assigned.	Medium
114	Gloria Darby	Testing	Quality	Blueprint Testing Incomplete within Phase 1 - #392	Phase 1 is coming to a close with Blueprint testing remaining incomplete. Achieving full accreditation as a SBM is dependent upon successful completion of Blueprint testing 6 scenarios remain outstanding, they have been postponed from one release to another to only be deferred once again. IV&V attestation is	It is recommended that the State require Deloitte to provide a timeline for completing testing, achieving attestation, and implementing the required functionality,	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					<p>required.</p> <p>The State of RI cannot be granted full certification as a SBM with testing scenarios incomplete. While CMS has not instituted a timeline for completion outside of the original 2013 date, deferring these test scenarios and business functionality into Phase 2 not only impacts the workload, timeline, but it also raises the concerns of additional costs</p>		
94	Bobby Malhotra	Technical	Quality	Centralizing common functionalities between worker Portal and HSRI integration - #356	<p>Deloitte presented three different options to the State for IES and Exchange integration. State selected the option to centralize the common functionalities. New design approaches will not require Synchronization of P1 and P2 Databases. Eligibility and enrollment HIX data model will replace with IES data model. The approach will integrate functions across Public Assistance and Exchange for EOHHS, Contact Center, and DHS. Reports and Notices between IES and Exchange will be limited to case data only. Integrated eligibility system will be</p>	<p>Deloitte should be required to provide technical expertise to help the State understand how and what areas of the system will be refactored or modified to incorporate single database efforts. Deloitte has failed to discuss with the State how the immediate storage area for the staging DB data processing will work. Deloitte must work closely with the State and all the agencies to discuss the Phase 2 new architecture approach. An Initial assessment of the new approach is highly recommended to identify any gaps. Critical areas such as 834 and 1095 should also be assessed in parallel.</p>	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					considered as a system of record Eligibility, case management, FDSH, Enrollment Data. If any agency is down for maintenance, for release activities or for any unexpected disaster all the areas will be affected and will be out of service. There is minimal technical architecture, information shared with the State at this time. Plan 10, DMP, Security design plan and other technical documents, which were based on a separate DB approach, need to be updated with the new approach.		
157	Bobby Malhotra	Technical	Quality	Consolidated Database Design – Database Technical Assessment	<p>During the development of the Database Consolidation Readiness Assessment Report, six of the technical areas evaluated in the database implementation had the following issues identified. This detailed list was noted in the original report issued on 01/29/16.</p> <p>#127/410 (High/High) – Hundreds of tables do not have referential integrity constraints.</p> <p>#131/414 (Medium/Medium) – The database has few mount points (stated as two or</p>	<p>The State should request from Deloitte a detailed reckoning of all database tables to account for all referential integrity and identify any tables that are not used or fully defined as per RI requirements. During performance testing, the State should request from Deloitte metrics demonstrating the disk utilization under heavy database load for any indications that input/output (I/O) requests are queuing or taking longer than should be expected to see if I/O tuning such as adding mount points is warranted. The State should request copies of the database object naming conventions from Deloitte, ensure</p>	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					<p>three) for physical storage on the SAN.</p> <p>#136/419 (Low/Low) – Database object naming is inconsistent.</p> <p>#138/422 (Low/Low) – Converted data being loaded to the new consolidated IES database schema is still being left behind in the HIX source schema.</p> <p>#139/423 (Low/Low) – The level of normalization within the new consolidated database design should be reviewed further as time permits.</p> <p>#140/424 (Low/Low) – Proprietary and COTS tools are used for database and application development; the COTS products can be licensed for the State, but the Deloitte proprietary tools need to be researched further. Based on current information, the overall Probability and Impact ratings are both Medium.</p> <p>Implications: If any constraints are missing from tables being used by the application, data integrity is at risk due to the potential that the application itself may allow</p>	<p>the documentation meets the needs of the State for any reporting, and support tasks that will be performed by the State or other vendors. The State should ensure that testing covers data scenarios where modifications made in the post-conversion copy of data in the consolidated IES database are successfully retrieved, modified, and/or deleted by any widgets that consume the data. This testing is to verify the widgets are not still accessing obsolete or un-synchronized copies of the data. If performance bottlenecks are identified with specific queries, the State should work with Deloitte to evaluate how the data is being stored and maintained to see if the data is properly (de)normalized to meet performance objectives. The State should request from Deloitte an explanation of any proprietary tools used for development and maintenance of the system and whether these will be turned over for to the State.</p>	

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					<p>bad data/relationships to be created or manual data fixes might introduce undetected data errors. If the physical storage available to the database servers via mount points is not sufficiently segregated, database performance will suffer due to contention. Inconsistencies in object naming can reduce productivity of development and support activities.</p> <p>Converted data left behind in the source database schema can complicate testing and takes up space. Intentionally de-normalizing some data may increase performance. If any development processes are using proprietary code-generators or other tools, these may be beneficial for the State to request as part of the system turnover.</p>		
159	Bobby Malhotra	Technical	Schedule/Resource	Consolidated Database Design – Disaster Recovery Impact	<p>During the development of the Database Consolidation Readiness Assessment Report, three areas related to disaster recovery (DR) had the following issues identified. This detailed list was noted in the original report issued on 01/29/16. #133/416</p>	<p>The State should confirm with Deloitte that the new DR site would have sufficient capacity to match the new production topology at go live. The State should continue to monitor the DR site move in relation to the changes being implemented to finalize the production topology. The State should meet with Deloitte to discuss detailed plans and timing</p>	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					<p>(Medium/Medium) – The disaster recovery facilities will need to be updated to match the final production topology (which has not been finalized) to incorporate changes for the single database design. #150/434</p> <p>(Medium/Medium) – The DR site vendor, NTT Data, is initiating a site move from the San Jose, California facility to their Sacramento, California location. #151/435</p> <p>(Medium/Medium) – While the changes are being introduced and validated for performance testing the IES application with the consolidated database, the DR site will likely remain out of sync with the new production configuration from a design perspective. (This is expected to be the case since the DR site must be a replica of the production infrastructure for worker portal.) Based on current information, the overall Probability and Impact ratings are both Medium.</p> <p>Implications: If the DR facilities are not up to date with the latest</p>	<p>for incorporating the new infrastructure configuration for the worker portal into the production environment for go live and the timing for the corresponding reconfiguration at the DR site.</p> <p>Early numbers for hardware requirements should be shared with the hosting vendor (NTT) for their revised capacity planning purposes to have a rough order of magnitude to ensure readiness when the time comes to expand the alternate production site.</p>	

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					<p>infrastructure capacity and configuration when the worker portal goes live, uptime SLAs will be impacted if a disaster occurs at the primary site. The exact timing of the DR site move is not known with certainty. The transition to a different DR site, while system configurations for production are changing, is a risk.</p> <p>The disaster recovery site is intended to mimic the live production environment (currently citizen portal only), but the design and topology for the full production Phase 2 implementation is significantly larger.</p>		
160	Bobby Malhotra	Technical	Quality	Consolidated Database Design – Performance Impacts	<p>During the development of the Database Consolidation Readiness Assessment Report, three areas related to the potential performance impact had the following issues identified. The detailed items as noted in the original report issued on 01/29/16. #134/417 (Medium/Medium) – The affected existing canned reports are being rewritten to accommodate the</p>	<p>The State should review the performance of the complete batch cycle and validate the dependencies to ensure required reports can be completed on time or are okay to be run ongoing after the primary batch cycle has completed. The State should itemize detailed SLAs from contract terms that need to be validated, tested, and enforced during performance testing. The State should review the performance of the complete batch cycle and validate the dependencies to ensure interfaces can be completed on time.</p>	Medium

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					<p>consolidated database during Phase 2.</p> <p>#137/420 (Medium/Medium) – Specific to the new approach with the consolidated database, the design of the online interaction between the HIX portion of the citizen portal and the new single source of truth in the IES database schema changes the path and timing of data updates and synchronization activity. Many of the batch operations for HIX will also now be required to process against the data within IES during the nightly cycle in the same basic window as IES batches. This introduces the potential for resource contention.</p> <p>#152/436 (Low/Low) – Given the movement of the single source of truth for the HIX data over to the IES schema, most of the interfaces will now be processed against that schema.</p> <p>Based on current information, the overall Probability and Impact ratings are both Medium.</p> <p>Implications: The volume of</p>	<p>Identify and prioritize key production metrics for validation to ensure that these can be evaluated as a top priority and any issues mitigated prior to go-live.</p> <p>For batch processes that run at night, the impact can be mitigated by carefully sequencing the batch jobs to avoid contention (preventing jobs affecting the same tables from running concurrently with each other). For any interfaces that process real-time or are otherwise triggered outside of a specific scheduled slot, error handling and any potential retry mechanisms would need to be implemented and thoroughly tested to mitigate contention and deadlock issues in the shared database.</p>	

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					<p>data will be higher overall with both HIX and IES going live so report performance may suffer.</p> <p>System performance must be sufficient to meet SLAs to ensure efficient use of the system by end users, including 24x7 access to the citizen portal features even while the nightly batch cycle is running. The increased reliance on the IES schema will cause a commensurate increase in the activity in that portion of the database from a physical data access perspective, potentially increasing contention for resources as well as potentially vying for concurrent updates to the same data itself from online activity or other batch operations.</p>		
156	Bobby Malhotra	Technical	Quality	Availability and Content of Design Documents	Terminology used in the database design document is not always used in a precise technical manner. Most of the high-level system documentation has not been updated since 2013. The documentation does not reflect a comprehensive baseline of what would have gone live for the original 2015 release. It does not	The State should request that Deloitte revise the existing documentation for the single database design to explicitly show at a schema and table level what is considered the source of truth and what is a synchronized copy of the data. The State should request that Deloitte provide additional documentation, including an overall CRUD matrix plus documentation showing the disposition of each HIX table from a post-conversion	Low

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					<p>incorporate the changes for the single database design for go-live in 2016.</p> <p>Implications: The state will not have a clear picture of the system they are receiving which can impact the long-term maintenance and support of the system. Specific examples have been listed below from individual observations in the Database Consolidation Readiness Assessment Report:</p> <p>#148/432: The single database design document does not paint a clear picture of the final design and implementation. The terminology for database and schema in particular were frequently interchanged or used ambiguously. The re-characterization that the citizen portal will utilize a separate “staging database” is misleading because it is neither a separate database, nor does it reflect the ongoing use for other programs within the citizen portal such as SHOP that are not being consolidated with IES.</p> <p>#149/433: Master matrix</p>	<p>standpoint.</p> <p>Request documentation, including a thoroughly reviewed and updated single database design document with a focus on clearly articulating the baseline that would have gone live and itemizing the differences in data storage and replication that will be used by the current implementation. Request a master CRUD matrix showing system-wide usage of data at a schema/table level. Document all existing Phase 1 schemas and tables with a disposition status on each (unused, unmodified, partially converted, dropped, etc.).</p>	

ID #	CSG POC	Big Rocks Category	Dashboard Category	Title	Observations	Recommendations	Risk Rank
					<p>showing where data is created, read, updated, and deleted (known as a CRUD matrix) does not exist. The technical designs for individual widgets were identified as having the details for usage of data elements, but these may not be readily cross-referenced or searched across the entire system. Maintenance staff may not be readily able to identify the true impact of data or design changes.</p> <p>#135/418: No systematic identification of HIX/SSP table-by-table disposition has been documented. Users performing ad-hoc reporting, support staff researching discrepancies or implementing data fixes, and future developers and system designers will not have a clear picture of what source system transactional and historical data is valid.</p>		

4.4 Catalog of Review

This section includes a list of the RI UHIP interviews, meetings observed, and materials reviewed by the CSG IV&V team during this Monthly IV&V Assessment.

4.4.1 Interviews

This section provides a listing of personnel interviewed during the month.

Table 4 – Project Stakeholders Interviewed

Project Stakeholders Interviewed	Title or Team	Organization
Vanessa Doorley	RI UHIP Project Manager	Office of Digital Excellence
Phil Silva	RI UHIP Technology Lead	Office of Digital Excellence
Deb Merrill	RI UHIP Technology Team	Division of Information Technology
Art Schnure	OHHS SME	RI Office of Health & Human Services
George Bowen	DHS Lead	RI Department of Human Services
Kailash Bolar	Lead Architect	Deloitte
Akhildev Remesan	Technical Consultant	Deloitte
Raj Mukkavilli	Infrastructure Lead	Deloitte
Saurabh Gupta	Sr. Security Manager	Deloitte
Michael Holte	Interface Lead	Deloitte

4.4.2 Meetings Attended

This section provides a listing of meetings observed.

Table 5 – Meetings Attended

Project Meetings Attended	Participants
UHIP Project Management Team (PMT) Meetings	State, Deloitte, and PCG
Problem Management Meetings	State and Deloitte
IV&V Monthly Risk Assessment with UHIP Leadership	State
IV&V Risks Review with Governor’s Office	State
Deloitte Technology Round Up Meetings	State and Deloitte
State Tech Status Meetings	State and Deloitte
State and Deloitte Security Meetings	State and Deloitte
3-Vendor Meetings	State, Deloitte, HP, and Northrop Grumman

Project Meetings Attended	Participants
Release Preparation Meetings	State and Deloitte
Daily UAT Defect Triage Meetings	State and Deloitte
Weekly UAT Defect Deep Dive Meetings	State and Deloitte
Weekly Release 7 UAT Update Meetings	State and Deloitte
Weekly Release 7 interface Meetings	State and Deloitte
Disaster Recovery Planning Meetings	State and Deloitte
CMS Meeting for Mandatory Documentation for Go-Live	State and CMS
IT Demo with HealthSource Rhode Island	State and Deloitte
M&O Contract and Release Preparation	State
UAT update Meeting with FNS	State, FNS, and Deloitte
UAT Cycle 3 Exit Meetings	State and Deloitte
Cycle 4 Preliminary SIT Exit Meeting	State and Deloitte
Implementation Activities and Readiness Meetings	State and Deloitte
EOHHS & HSRI – Testing and Planning Meetings	State and Deloitte
Third Party SAR Planning Meetings	State
IV&V Observations, Risks and Issues Update Meetings	State and Deloitte

4.4.3 Documents and Files Reviewed

This section provides a detailed listing of all documents reviewed during the month.

Table 6 – Documents and Files Reviewed

Documents and Files Reviewed
Daily Operations Report
Maintenance and Operations Release Notes
Hot Fixes Release Notes
Key Performance Indicators
System Performance Reports
Data Analytics Wave 2 Technical Design Document
SIT Build and Unit test results
Release 7 Interface documentation
Release 7 Conversion Document
Security Controls on accessing Production Data for UAT

Documents and Files Reviewed
Implementation Readiness Plan
Maintenance and Operations Contract
CMS disaster recovery (DR) testing requirements (IV&V attestation required)
Functional Enhancement SIT and Unit Test Results
Mock Pilot Three Plan
Privacy Impact Assessment federal document
Release 7 interfaces tracker with timeline and schedule
Release 7 MMIS issues; assessed and provided comments
Release 7 Northrup Grumman Interfaces Plan Schedule
Release 7 Performance Testing Plan
Code Review
State Office Readiness Assessment
Security Implementation activities and the risk register
MARS-E 2.0 and MARS-E1.0 compliance documents

5. DELIVERABLE SIGNOFF AND APPROVAL

The following approval form is used to indicate that this Project Deliverable, the Rhode Island Unified Health Infrastructure Project Monthly IV&V Assessment, has been reviewed by the State and all the necessary project stakeholders, and the authorized signers accept and approve the content herein.

Unified Health Infrastructure Project

State Approvals

CSG Monthly Status Report	
Conditional Deliverable Information	
Conditions of Acceptance:	
How Conditions Were Met:	
Date Resubmitted for Final Acceptance:	
Conditional Deliverable Signoff	
CSG: _____	Date: _____
<input type="checkbox"/> Approved With Indicated Conditions	<input type="checkbox"/> Not Approved
State Representative: _____	Date: _____
Final Deliverable Signoff	
CSG: _____	Date: _____
DOA Representative: _____	Date: _____